

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A business process service debugger for remotely debugging a business process service, comprising:
 - means for establishing a communications connection with a remote computer, wherein the remote computer is implementing the business process service;
 - means for reading stored state information regarding events related to one business process amongst a plurality of business processes implemented on the business process service; and
 - means for remotely debugging the one business process service by way of the communications connection and according to the stored state information.
2. (Original) The business process service debugger of claim 1, further comprising means for displaying the business process service as a graphical image.
3. (Original) The business process service debugger of claim 2, wherein the graphical image comprises a workflow.
4. (Original) The business process service debugger of claim 2, further comprising means for interacting with the business process service according to a user instruction.
5. (Original) The business process service debugger of claim 1, wherein the stored state information corresponds to a variable assignment within the business process service.
6. (Currently amended) The business process service debugger of claim 1, wherein the events are historical events that occurred prior to failure of the one business process, ~~stored state information is stored in a database.~~
7. (Currently amended) The business process service debugger of claim 1, wherein the

stored state information corresponds to message flow data and an order in which run time components performed the one business process as a result of message processing.

8. (Original) The business process service debugger of claim 1, wherein said reading means further comprises means for reading stored business process service configuration information.

9. (Currently amended) The business process service debugger of claim 1, wherein the events are events that occur prior to an inserted breakpoint in the one business process. ~~said establishing means further comprises means for maintaining communications across a plurality of remote computers.~~

10. (Original) The business process service debugger of claim 1, wherein said debugging means comprises means for detecting a location where the instance is being processed.

11. (Original) The business process service debugger of claim 1, wherein said debugging means comprises means for detecting a location where the instance state is being stored.

12. (Currently amended) A system for remotely debugging a distributed transactional application, comprising:

a server, wherein the server runs a business process service comprising a plurality of business processes, thereby generating runtime data;

a client computer for running a debugging user interface (UI) process, wherein the UI process establishes a communications connection with the server according to a user instruction, and further generates a runtime request for debugging an orchestration service instance that is implementing at least one of the plurality of business processes, the runtime request being carried out by using a engine debugging interface for depositing a debugging request in a message box database; and ~~pertaining to a location within the business process service; and~~

an interceptor for identifying the location within the business process service according to the runtime data and, when the location is identified, causing the server to carry out the runtime request.

13. (Original) The system of claim 12, further comprising a database for receiving the runtime data and for storing business process service state information.

14. (Original) The system of claim 13, further comprising a display device, wherein the display device presents a shape corresponding to the business process service based on the business process service state information, and an input device, wherein the input device receives the user instruction.

15. (Original) The system of claim 14, wherein the display device further presents a workflow representative of the program flow of the business process service.

16. (Original) The system of claim 14, wherein the display device further presents data representative of the message flow of the business process service.

17. (Original) The system of claim 14, wherein the shape is presented according to stored state information.

18. (Currently amended) The system of claim 12, wherein the message box database is coupled to the engine debugging interface and is configured for performing specialized tasks relating to at least one of the plurality of business processes. ~~database comprises a first database for receiving the runtime data and storing un-decoded tracking data and a second database for decoding and storing business process service tracking status information.~~

19. (Original) The system of claim 18, wherein the UI process comprises an application program interface for communicating with the first database.

20. (Original) The system of claim 18, wherein the UI process comprises a UI component for communicating with the second database.
21. (Canceled)
22. (Canceled)
23. (Original) The system of claim 12, wherein the interceptor is a component of a computer language that provides stored state tracking information.
24. (Original) The system of claim 12, wherein the UI process detects a location where the instance is being processed.
25. (Original) The system of claim 12, wherein the UI process detects a location where the instance state is being stored.
26. (Currently amended) A method for debugging a business process service instance running on a remote computer, comprising:
if the business process service is in a debug mode, establishing a direct client connection channel with the remote computer;
causing an interceptor to monitor data regarding the business process service to find a location within the service based on stored state information;
receiving a runtime request for event information pertaining to the business process service instance in the business process service, the event information comprising historical message flow information, and identification of events that occurred previously in the business process after the process has completed successfully or failed with an error; and
processing the runtime request at the remote computer with respect to the location within the instance.
27. (Original) The method of claim 26, further comprising:
querying a database containing a status of the business process service;

displaying a query result on a display device;
receiving user input with respect to the query result; and
establishing the direct client connection channel in response to the user input.

28. (Original) The method of claim 27, wherein the information contained in the database is instance runtime data.

29. (Original) The method of claim 27, wherein the information contained in the database is instance tracking data.

30. (Original) The method of claim 26, further comprising:
creating the business process service using a process designer;
saving a business process service configuration and symbolic data in a database;
displaying a graphical representation of the business process service on a display device according to the saved business process service symbolic data;
generating a runtime request based on the graphical representation; and
displaying a result of the runtime request on the display device.

31. (Original) The method of claim 30, wherein the graphical representation comprises a shape corresponding to an operation in the business process service.

32. (Original) The method of claim 30, wherein the graphical representation comprises a workflow representation of the business process service.

33. (Original) The method of claim 30, wherein the saving step takes place in connection with compiling and deploying the business process service.

34. (Original) The method of claim 30, wherein the business process service is implemented in a computer language that provides stored state information.

35. (Original) The method of claim 30, wherein the interceptor request is a break point.

36. (Canceled)

37. (Currently amended) The method of claim 26 ~~36~~, wherein the data regarding the instance is state information.

38. (Original) The method of claim 26, further comprising detecting a location where the instance is being processed.

39. (Original) The method of claim 26, further comprising detecting a location where an instance state is being stored.

40. (Currently amended) A method in a computer system for displaying on a display device a business process service debugger, the method comprising:

querying a database for tracking information regarding the business process service, wherein ~~the tracking information contains an operation~~ the query includes a reference to an identifier that is stored along with a set of tracked events for debugging purposes;

receiving a query result and generating a shape representative of the operation according to the identifier; and

presenting the shape, the tracking information according to the query result, and a debugging option on the display device.

41. (Original) The method of claim 40, further comprising receiving runtime data for the business process service and presenting the runtime data on the display device.

42. (Currently amended) The method of claim 41, wherein the runtime data comprises historical message flow information including identification of run time messages that were constructed as a result of processing received messages, and further comprises order information pertaining to the order in which different run time components were executed as a result of processing received messages.

43. (Original) The method of claim 40, wherein the debugging option is to place a breakpoint in the business process service.
44. (Original) The method of claim 40, further comprising presenting a content of a message according to the process.
45. (Original) The method of claim 40, further comprising receiving input from an input device to place a break point proximate a shape, and presenting a symbol representing the break point on the display device.
46. (Currently amended) A computer-readable storage medium having computer-executable instructions for performing a method for debugging a business process service instance running on a remote computer, comprising:
- if the business process service is in a debug mode, establishing a direct client connection channel with the remote computer;
 - causing an interceptor to monitor data regarding the business process service to find a location within the service based on stored state configuration, the monitored data being selected for purposes of debugging and including information on when a business process was started, when the business process was ended, and whether the business process succeeded or failed;
 - receiving a runtime request; and
 - processing the runtime request at the remote computer with respect to the instance.
47. (Currently amended) The computer-readable storage medium of claim 46, wherein the method further comprises:
- querying a database containing a status of the business process service;
 - displaying a query result on a display device;
 - receiving user input with respect to the query result; and
 - establishing the direct client connection channel in response to the user input.

48. (Currently amended) The computer-readable storage medium of claim 47, wherein the information contained in the database is instance runtime data.

49. (Currently amended) The computer-readable storage medium of claim 47, wherein the information contained in the database is instance tracking data.

50. (Currently amended) The computer-readable storage medium of claim 46, wherein the method further comprises:

- creating the business process service using a process designer;
- saving business process service configuration data in a database;
- displaying a graphical representation of the business process service on a display device according to the saved business process service configuration data;
- generating a runtime request based on the graphical representation; and
- displaying a result of the runtime request on the display device.

51. (Currently amended) The computer-readable storage medium of claim 50, wherein the graphical representation comprises a shape corresponding to an operation in the business process service.

52. (Currently amended) The computer-readable storage medium of claim 50, wherein the graphical representation comprises a workflow representation of the business process service.

53. (Currently amended) The computer-readable storage medium of claim 50, wherein the saving step takes place in connection with compiling and deploying the business process service.

54. (Currently amended) The computer-readable storage medium of claim 50, wherein the business process service is implemented in a computer language that provides stored state information.

55. (Currently amended) The computer-readable storage medium of claim 50, wherein the runtime request is a break point.

56. (Currently amended) The computer-readable storage medium of claim 50, wherein the runtime request is a request for data regarding an instance of the business process service.

57. (Currently amended) The computer-readable storage medium of claim 56, wherein the data regarding the instance is state information.

58. (Currently amended) The computer-readable storage medium of claim 46, wherein the method further comprises detecting a location where the instance is being processed.

59. (Currently amended) The computer-readable storage medium of claim 46, wherein the method further comprises detecting a location where an instance state is being stored.

60. (Currently amended) A computer-readable storage medium having computer-executable instructions for performing a method for displaying on a display device a business process service debugger, the method comprising:

querying a database for configuration information regarding the business process service, wherein the query includes a reference to an identifier that is stored along with the configuration information ~~contains an operation identifier~~ for debugging purposes;

receiving a query result and generating a shape representative of the operation according to the identifier; and

presenting the shape, the configuration information according to the query result, and a debugging option on the display device.

61. (Currently amended) The computer-readable storage medium of claim 60, wherein the method further comprises receiving runtime data for the business process service and presenting the runtime data on the display device.

62. (Currently amended) The computer-readable storage medium of claim 61, wherein the runtime data comprises message flow information.
63. (Currently amended) The computer-readable storage medium of claim 60, wherein the debugging option is to place a breakpoint in the business process service.
64. (Currently amended) The computer-readable storage medium of claim 60, wherein the method further comprises presenting a content of a message according to the process.
65. (Currently amended) The computer-readable storage medium of claim 60, wherein the method further comprises receiving input from an input device to place a break point proximate a shape, and presenting a symbol representing the break point on the display device.